

LISTS OF SPECIES

Magnoliophyta species of *restinga*, state of Pernambuco, Brazil.

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Abstract: *Restinga* vegetation occurs along the entire coast of Brazil. The 187 km of coastline of the state of Pernambuco demonstrates a diversity of habitats, such as beaches, dunes, and *restingas*. The present study sought to elaborate a checklist of the phanerogamic species found there. The species listed were compiled from surveys undertaken between 1951 and 2007, as well as from herbaria collections in that state. A total of 477 species distributed among 303 genera and 95 families were encountered. The families with the greatest numbers of species were Poaceae (39 species), Fabaceae (34), Cyperaceae (26), Euphorbiaceae (25), Myrtaceae (24), Rubiaceae (20), Caesalpiniaceae (17), Mimosaceae (16), Asteraceae (14), Orchidaceae (14), Bromeliaceae (9), Boraginaceae (8), Malvaceae (8), Solanaceae (8), and Annonaceae, Araceae, Chrysobalanaceae, Malpighiaceae, and Melastomataceae (7 each). Approximately 60 % of the species were common to other *restinga* areas in northeastern Brazil, and 39.3 % were restricted to the coast of Pernambuco.

Introduction

Restingas are composed of a mosaic of physiognomically distinct vegetation communities growing on recent marine sediments that are subject to both marine and freshwater influences and demonstrate significant ecological diversity (Sugiyama 1998).

Restingas occur over most of the Brazilian coastline, and the state of Pernambuco, with 187 km of coast, possesses a diversity of habitats, such as beaches, dunes, and the *restingas* strictly (Andrade-Lima 1960). However, very little of the original landscape is still intact, and these environments and their component biodiversity are fast disappearing as a result of anthropogenic influences, even though these areas are protected through federal laws (Araujo and Henriques 1984).

There is no currently published list of the *restinga* species for Pernambuco or any information concerning the physiognomic variations that exist there, only a number of spatially distinct studies of the local flora. Zickel et al. (2004), however, have published data concerning the floras of the

restinga vegetation in that state, together with a short compilation of the principal studies undertaken in other coastal regions of northeastern Brazil. Due to the continual loss of habitat within the *restinga* ecosystems of Pernambuco, it becomes all the more important to study and document the remaining areas.

As such, the goal of the present study was to construct a checklist of the phanerogamic species recorded in the *restingas* of the state of Pernambuco, Brazil.

Materials and methods

Pernambuco is one of nine states in the northeastern region of Brazil, and it occupies an area of approximately 98,281 km² (IBGE 2000) (Figure 1).

The species listed here were compiled from surveys made in diverse areas along the coast of the state of Pernambuco between 1951 and 2007, and includes information gathered from collections housed at the IPA, PEUFR, and UFP herbaria (see Holmgren and Holmgren 1998), in

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that state. The list of species was compiled of different municipalities of the *restinga* in Pernambuco (Table 1). However, the registration of the species in the *restinga* of Goiana, Itapissuma, Olinda, and São José da Coroa Grande are not defined by a unique collection point.

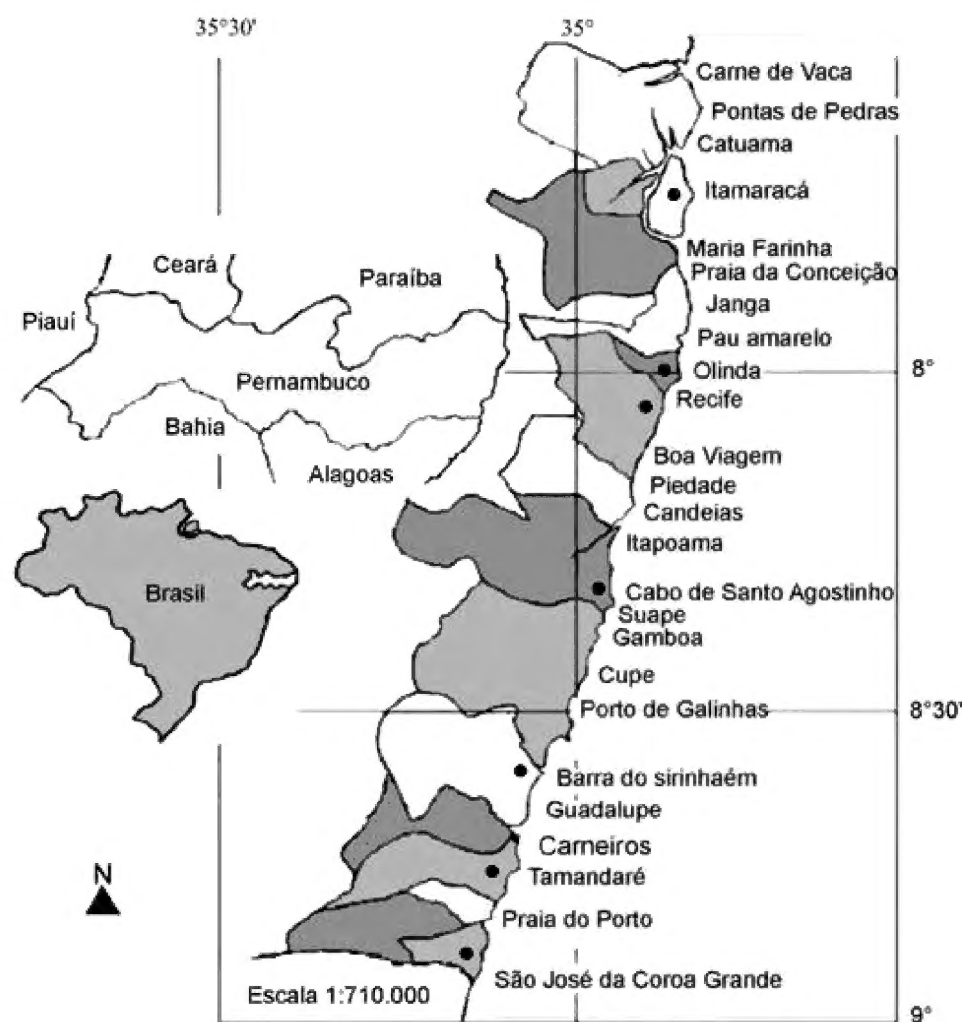


Figure 1. Map of Brazil; in detail the state of Pernambuco showing sites (black circle) surveys made along the Atlantic coast.

The checklist classifies the genera by order of their families, followed by a list of species. The classification system used was based on Cronquist (1988). Current species names and new synonyms were confirmed by consulting the MOBOT data base (2007) as well as the specialized literature for some groups.

Species distribution was considered ample when the species occurred in more than one *restinga* site, and restricted when they were listed for only a single area. The surveys consulted included: Andrade-Lima (1951; 1953; 1979), Cantarelli (2003), Lira (2004), Leite and Andrade (2004), Almeida Jr. (2006), Sacramento et al. (in press), for the state of Pernambuco; Silva (1972), Esteves (1980), Rocha (1984) for the state of Alagoas;

Pinto et al. (1984), Britto et al. (1993), Meira-Neto et al. (2005), Viana et al. (2006) for the state of Bahia; Matias and Nunes (2001), Matias and Silva (2001) for the state of Ceará; Oliveira-Filho and Carvalho (1993), Oliveira-Filho (1993), Pontes (2000) for the state of Paraíba; Cabral-Freire and Monteiro (1993) for the state of Maranhão; and Tavares (1960), Freire (1990), Trindade (1991), Almeida et al. (2006) and Almeida Jr. and Zickel (unpublished data), for the state of Rio Grande do Norte. The states of Piauí and Sergipe do not own bibliographical data about their *restinga* flora.

Table 1. Municipalities list where were compiled the species of. the *restingas* of Pernambuco.

Municipalities	Coordinates
Cabo de Santo Agostinho	08°07'30" S, 35°00'55" W
Goiana	07°33'38" S, 35°00'09" W
Ipojuca	08°31'48" S, 35°01'05" W
Itamaracá	07°45'00" S, 34°49'30" W
Itapissuma	07°46'26" S, 34°53'27" W
Olinda	08°01'42" S, 34°51'42" W
Paulista	07°56'24" S, 34°52'46" W
Recife	08°06'02" S, 34°52'48" W
São José da Coroa Grande	08°53'52" S, 35°08'52" W
Sirinhaém	08°35'27" S, 35°06'58" W
Tamandaré	08°47'20" S, 35°06'45" W

Results and discussion

The list of phanerogamic species of the *restinga* areas of Pernambuco State included 477 species distributed among 303 genera and 94 families (Table 2). The most species rich families were Poaceae (39), Fabaceae (34), Cyperaceae (26), Euphorbiaceae (25), Myrtaceae (24), Rubiaceae (20), Caesalpiniaceae (17), Mimosaceae (16), Asteraceae (14), Orchidaceae (14), Bromeliaceae (9), Boraginaceae (8), Malvaceae (8), Solanaceae (8), and Annonaceae, Araceae, Chrysobalanaceae, Malpighiaceae and Melastomataceae (7 each), totaling 62 % of the total number of species encountered.

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Table 2. List of phanerogamic species of the *restinga* areas of the state of Pernambuco, from 1951 to february 2007. ▲ = Species with ample distribution within the *restingas* of northeastern Brazil; * = Species cited for Rio de Janeiro and Espírito Santo states (Pereira and Araujo 2000).

Families/ Species
Acanthaceae
<i>Pseuderanthemum atropurpureum</i> (W. Bull) Radlk.
<i>Ruellia asperula</i> (Mart. & Nees) Lindau
<i>Ruellia geminiflora</i> Kunth
Aizoaceae
<i>Sesuvium portulacastrum</i> (L.) L.*▲
Amaranthaceae
<i>Alternanthera philoxeroides</i> (Mart.) Griseb.▲
<i>Iresine portulacoides</i> (A. St.-Hil.) Moq.▲
<i>Phloxerus vermicularis</i> (L.) R. Br. ex Sm.▲
Anacardiaceae
<i>Anacardium occidentale</i> L.*▲
<i>Schinus terebinthifolius</i> Raddi.*▲
<i>Spondias mombin</i> L.
<i>Tapirira guianensis</i> Aubl.*▲
Annonaceae
<i>Annona crassiflora</i> Mart.
<i>Annona glabra</i> L.*▲
<i>Annona</i> aff. <i>montana</i> Macfad.
<i>Duguetia gardneriana</i> Mart.▲
<i>Rollinia pickelli</i> Diels
<i>Xylopia frutescens</i> Aubl.▲
<i>Xylopia laevigata</i> (Mart.) R. E. Fr.*▲
Apiaceae
<i>Hydrocotyle umbellata</i> L.
Apocynaceae
<i>Catharanthus roseus</i> (L.) G. Don▲
<i>Hancornia speciosa</i> Gomes*▲
<i>Himatanthus phagedaenicus</i> (Mart.) Woodson*▲
<i>Lochnera rosea</i> (L.) Rchb. ex Endl.
<i>Mandevilla moricandiana</i> (A.DC.) Woodson*▲
<i>Mandevilla scabra</i> (Hoffmanns. ex Roem. & Schult.) K. Schum.▲
Araceae
<i>Anthurium affine</i> Schott▲
<i>Montrichardia linifera</i> (Arruda) Schott*
<i>Philodendron acutatum</i> Schott
<i>Philodendron imbe</i> Schott▲
<i>Pistia stratiotes</i> L.
<i>Rhodospatha latifolia</i> Poepp.
<i>Zomicarpa pythonium</i> Schott
Araliaceae
<i>Schefflera morototoni</i> (Aubl.) Maguire, Steyer. & Frodin*

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Table 2. Continuation.

Arecaceae
<i>Acrocomia intumescens</i> Drude [▲]
<i>Bactris humilis</i> (Wallace) Burret.*
<i>Desmoncus orthacanthos</i> Mart.* [▲]
<i>Elaeis guineensis</i> Jacq. [▲]
<i>Syagrus schizophylla</i> (Mart.) Glassman* [▲]
Aristolochiaceae
<i>Howardia trilobata</i> (L.) Klotzsch [▲]
Asclepiadaceae
<i>Calotropis procera</i> (Ailt.) W.T. Ailt. [▲]
<i>Ditassa crassifolia</i> Decne
<i>Matelea maritima</i> ssp. <i>ganglinosa</i> (Vell.) Font.* [▲]
Asteraceae
<i>Acanthospermum hispidum</i> DC. [▲]
<i>Ambrosia microcephala</i> DC. [▲]
<i>Aspilia martii</i> Baker [▲]
<i>Bidens pilosa</i> L.
<i>Conocliniopsis prasiifolia</i> (DC.) R.M. King & H. Rob. [▲]
<i>Conyza bonariensis</i> (L.) Cronquist [▲]
<i>Elephantopus hirtiflorus</i> DC. [▲]
<i>Emilia sonchifolia</i> (L.) DC. [▲]
<i>Mikania obovata</i> DC. [▲]
<i>Platypodanthera melissaefolia</i> (DC.) R. M. King & H. Rob.
<i>Rolandra argentea</i> Rottb.
<i>Synedrella nodiflora</i> (L.) Gaertn.
<i>Wedelia paludosa</i> DC. [▲]
<i>Wedelia trilobata</i> (L.) Hitchc. [▲]
Bignoniaceae
<i>Arrabidaea conjugata</i> (Vell.) Mart.* [▲]
<i>Lundia cordata</i> (Vell.) A. DC.* [▲]
<i>Tabebuia chrysotricha</i> (Mart. ex A. DC.) Standl.* [▲]
<i>Tabebuia roseoalba</i> (Ridl.) Sandwith* [▲]
Boraginaceae
<i>Cordia multispicata</i> Cham. [▲]
<i>Cordia sellowiana</i> Cham.*
<i>Cordia superba</i> Cham. [▲]
<i>Cordia toqueve</i> Aubl.
<i>Heliotropium elongatum</i> Hoffm. ex Roem. & Schult.
<i>Tournefortia candidula</i> (Miers) I.M. Johnst. [▲]
<i>Tournefortia subsessilis</i> Cham.
<i>Varronia verbenacea</i> (DC.) Borhidi [▲]
Bromeliaceae
<i>Aechmea aquilega</i> (Salisb.) Griseb. [▲]
<i>Aechmea muricata</i> (Arruda da Câmara) L.B. Sm.
<i>Aechmea tomentosa</i> Mez
<i>Bromelia karatas</i> L.
<i>Cryptanthus burle-marxii</i> Leme
<i>Hohenbergia ramageana</i> Mez

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Table 2. Continuation.

<i>Hohenbergia ridleyi</i> (Baker) Mez.▲
<i>Portea leptanhta</i> Harms
<i>Portea petropolitana</i> (Wawra) Mez.*
Burseraceae
<i>Protium bahianum</i> Daly▲
<i>Protium heptaphyllum</i> (Aubl.) Marchand*▲
Cactaceae
<i>Cereus fernambucensis</i> Lem.*▲
<i>Cereus jamacaru</i> DC.▲
<i>Melocactus violaceus</i> Pfeiff.*▲
<i>Pilosocereus hapalacanthus</i> (Werderm.) Byles & G.D. Rowley▲
Caesalpinaceae
<i>Apuleia leiocarpa</i> (Vogel) J. F. Macbr.▲
<i>Binaria rubiginosa</i> (Bong.) Schmitz▲
<i>Caesalpinia bonduc</i> (L.) Roxb.
<i>Cassia coluteoides</i> Collad.
<i>Cassia hoffmannseggii</i> Mart. ex Benth.
<i>Chamaecrista apoucouita</i> (Aubl.) H.S. Irwin & Barneby▲
<i>Chamaecrista ensiformis</i> (Vell.) H.S. Irwin & Barneby*
<i>Chamaecrista flexuosa</i> (L.) Greene▲
<i>Chamaecrista ramosa</i> (Vogel) H.S.Irwin e Barneby*▲
<i>Chamaecrista repens</i> (Vogel) H. S. Irwin & Barneby
<i>Chamaecrista rotundifolia</i> (Pers.) Greene▲
<i>Hymenaea martiana</i> Hayne
<i>Senna alata</i> (L.) Roxb.▲
<i>Senna macranthera</i> (DC. ex Collad.) H.S. Irwin & Barneby
<i>Senna obtusifolia</i> (L.) H.S. Irwin & Barneby
<i>Senna tora</i> (L.) Roxb.▲
<i>Sericeocassia uniflora</i> (Mill.) Britton▲
Campanulaceae
<i>Cephalostigma bahiense</i> A. DC.
Capparaceae
<i>Capparis flexuosa</i> (L.) L.*▲
<i>Cleome longicarpa</i> Eltis
<i>Cleome spinosa</i> Jacq.▲
<i>Hemiscola aculeata</i> (L.) Raf.▲
Cecropiaceae
<i>Cecropia pachystachya</i> Trécul*▲
Celastraceae
<i>Maytenus distichophylla</i> Mart.*▲
Chrysobalanaceae
<i>Chrysobalanus icaco</i> L.*▲
<i>Couepia impressa</i> Prance▲
<i>Couepia rufa</i> Ducke.▲
<i>Hirtella racemosa</i> Lam.▲
<i>Licania</i> aff. <i>dealbata</i> Hook. F.
<i>Licania rigida</i> Benth.
<i>Licania tomentosa</i> (Benth.) Fritsch▲

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Table 2. Continuation.

Clusiaceae
<i>Calophyllum brasiliense</i> Cambess.*▲
<i>Clusia nemorosa</i> G. Mey.*▲
<i>Clusia paralicola</i> G. Mariz
<i>Rheedia macrophylla</i> (Mart.) Planch. & Triana
<i>Symphonia globulifera</i> L. f.*▲
<i>Vismia guianensis</i> (Aubl.) Pers.▲
Combretaceae
<i>Buchenavia capitata</i> (Vahl) Eichler*▲
<i>Conocarpus erectus</i> L.▲
Commelinaceae
<i>Commelina erecta</i> L.▲
<i>Commelina obliqua</i> Vahl.▲
<i>Dichorisandra albo-marginata</i> Linden
<i>Dichorisandra glaziovii</i> Taub.
Convolvulaceae
<i>Convolvulus littoralis</i> L.▲
<i>Ipomoea asarifolia</i> (Desr.) Roem. & Schult.▲
<i>Ipomoea imperati</i> (Vahl) Griseb.*
<i>Ipomoea marcellia</i> Meisn.
<i>Ipomoea pes-caprae</i> (L.) R. Br.*▲
<i>Merremia umbellata</i> (L.) Hallier f.
Costaceae
<i>Costus spiralis</i> Jack*▲
Crassulaceae
<i>Kalanchoe pinnata</i> (Lam.) Pers
Cyperaceae
<i>Abildgaardia scirpoides</i> Nees*▲
<i>Bulbostylis capillaris</i> (L.) C.B.Clarke▲
<i>Cyperus aggregatus</i> (Willd.) Endl.▲
<i>Cyperus articulatus</i> L.*
<i>Cyperus flavus</i> J. Presl & C. Presl
<i>Cyperus hermaphroditus</i> (Jacq.) Standl.
<i>Cyperus laxus</i> Lam.
<i>Cyperus ligularis</i> L.▲
<i>Cyperus marginatus</i> Thunb.
<i>Cyperus meyenianus</i> Kunth▲
<i>Cyperus sphacelatus</i> Rottb.
<i>Cyperus surinamensis</i> Rottb.▲
<i>Eleocharis geniculata</i> (L.) Roem. & Schult.*▲
<i>Eleocharis interstincta</i> (Vahl.) R. et Schult.*▲
<i>Fimbristylis cymosa</i> (Lam.) R.Br.*▲
<i>Fimbristylis cymosa</i> subsp. <i>spathacea</i> (Roth) T. Koyama*▲
<i>Fimbristylis diphylla</i> (Retz.) Vahl
<i>Fimbristylis glomerata</i> Boeck.▲
<i>Fuirena umbellata</i> Rottb.*
<i>Pycreus pelophylus</i> (Ridl.) C.B. Clarke
<i>Pycreus polystachyos</i> (Rottb.) P. Beauv.*▲

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Table 2. Continuation.

<i>Remirea maritima</i> Aubl.*▲
<i>Rhynchospora barbata</i> (Vahl.) Kunth.▲
<i>Rhynchospora riparia</i> (Nees) Boeck.▲
<i>Rhynchospora tenuis</i> Willd. ex Link*▲
<i>Scleria bracteata</i> Cav.▲
Dilleniaceae
<i>Curatella americana</i> L.▲
<i>Doliocarpus dentatus</i> (Aubl.) Standl.
<i>Tetracera breyniana</i> Schltld.*▲
Dioscoreaceae
<i>Dioscorea leptostachya</i> Gardner*
<i>Dioscorea polygonoides</i> Humb. & Bonpl. ex Willd.*
Elaeocarpaceae
<i>Sloanea guianensis</i> (Aubl.) Benth.*
Ericaceae
<i>Gaylussacia brasiliensis</i> (Spreng.) Meisn.*▲
Eriocaulaceae
<i>Eriocaulon palustre</i> Salzm. ex. Steud.
<i>Paepalanthus bifidus</i> (Schrader) Kunth*▲
<i>Paepalanthus tortilis</i> (Bong.) Koern.*
Erythroxylaceae
<i>Erythroxylum citrifolium</i> A. St.-Hill
<i>Erythroxylum columbinum</i> Mart.
<i>Erythroxylum passerinum</i> Mart.*▲
<i>Erythroxylum pungens</i> O.E. Schulz
<i>Erythroxylum suberosum</i> A. St.-Hil.
<i>Erythroxylum vacciniifolium</i> Mart.
Euphorbiaceae
<i>Caperonia castaneifolia</i> (L.) A. St.-Hil.
<i>Chaetocarpus myrsinites</i> Baill.*▲
<i>Chamaesyce brasiliensis</i> (Lam.) Small▲
<i>Chamaesyce hyssopifolia</i> (L.) Small▲
<i>Chamaesyce prostrata</i> (Aiton) Small▲
<i>Chamaesyce thymifolia</i> (L.) Millsp.▲
<i>Cnidoscolus urens</i> (L.) Arthur▲
<i>Croton brasiliensis</i> Mart. ex Klotzsch*▲
<i>Croton hirtus</i> L'Hér.
<i>Croton klotzschii</i> (Didr.) Baill.*▲
<i>Croton lobatus</i> L.▲
<i>Croton sellowii</i> Baill.▲
<i>Dalechampia scandens</i> L.▲
<i>Dalechampia tiliifolia</i> var. <i>ficifolia</i> (Lam.) Kuntze*▲
<i>Euphorbia pilulifera</i> var. <i>discolor</i> Engelm.▲
<i>Jatropha mollissima</i> (Pohl) Baill.▲
<i>Mycrostachys corniculata</i> (Vahl.) Griseb.*▲
<i>Pera ferruginea</i> (Schott) Müll. Arg.▲
<i>Pera glabrata</i> (Schott) Poepp. ex Baill.*▲
<i>Phyllanthus acidus</i> (L.) Skeels

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Table 2. Continuation.

<i>Phyllanthus minutulus</i> Müll. Arg.
<i>Phyllanthus niruri</i> L.▲
<i>Pogonophora schomburgkiana</i> Miers ex Benth.▲
<i>Poinsettia heterophylla</i> (L.) Klotzsch & Garcke
<i>Ricinus communis</i> L.▲
Fabaceae
<i>Abrus precatorius</i> L.▲
<i>Aeschynomene sensitiva</i> Sw.*
<i>Andira fraxinifolia</i> Benth.*▲
<i>Andira nitida</i> Mart. ex Benth.*▲
<i>Canavalia brasiliensis</i> Mart. ex Benth.▲
<i>Canavalia obtusifolia</i> DC.▲
<i>Canavalia rosea</i> (Sw.) DC.*▲
<i>Centrosema brasilianum</i> (L.) Benth.▲
<i>Clitoria cajanifolia</i> (C. Presl) Benth.
<i>Clitoria laurifolia</i> Poir.▲
<i>Crotalaria pallida</i> Aiton▲
<i>Crotalaria retusa</i> L.▲
<i>Dalbergia ecastaphyllum</i> (L.) Taub.*▲
<i>Dalbergia heptaphylla</i> Poir.
<i>Desmodium barbatum</i> (L.) Benth.▲
<i>Desmodium incanum</i> DC.▲
<i>Dioclea bicolor</i> Benth.
<i>Erythrina velutina</i> Willd.▲
<i>Hymenolobium alagoanum</i> Ducke.▲
<i>Indigofera campestris</i> Bong.ex Benth.
<i>Indigofera suffruticosa</i> Mill.▲
<i>Machaerium angustifolium</i> Vog.
<i>Macroptilium gracile</i> (Poepp. Ex. Benth.) Urb.▲
<i>Periandra mediterranea</i> (Vell.) Taub.▲
<i>Rhynchosia phaseoloides</i> (Sw.) DC.*▲
<i>Sesbania exasperatus</i> (Kunth) Rydb.
<i>Sophora tomentosa</i> L.*▲
<i>Swartzia pickelii</i> Killip ex Ducke▲
<i>Stylosanthes angustifolia</i> Vogel
<i>Stylosanthes gracilis</i> Kunth
<i>Stylosanthes guianensis</i> (Subl.) Sw.▲
<i>Stylosanthes viscosa</i> (L.) Sw.▲
<i>Vigna candida</i> (Vell.) Maréchal, Mascherpa & Stainier*
<i>Zornia diphylla</i> (L.) Pers.▲
Flacourtiaceae
<i>Casearia javitensis</i> Kunth
<i>Casearia ramiflora</i> Vahl.
<i>Casearia sylvestris</i> Sw.▲
Gentianaceae
<i>Schultesia guianensis</i> (Aubl.) Malme*

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Heliconiaceae
<i>Heliconia angustifolia</i> Hook.
<i>Heliconia psittacorum</i> L. F.*▲
<i>Heliconia rostrata</i> Ruiz & Pav.
Humiriaceae
<i>Humiria balsamifera</i> Aubl.*▲
<i>Sacoglottis mattogrossensis</i> Malme*▲
Icacinaceae
<i>Emmotum fagifolium</i> Desv. ex Ham.
Iridaceae
<i>Cipura paludosa</i> Aubl.
<i>Neomarica caerulea</i> (Ker Gawl.) Sprague▲
Lamiaceae
<i>Hyptis fruticosa</i> Salzm. ex Benth.▲
<i>Hyptis lanceolata</i> Poir.
<i>Hyptis suaveolens</i> (L.) Poit.
<i>Ocimum gratissimum</i> L.
Lauraceae
<i>Cassytha americana</i> Ness.▲
<i>Cassytha filiformis</i> L.*▲
<i>Nectandra cuspidata</i> Nees & Mart.
<i>Ocotea duckei</i> Vattimo▲
<i>Ocotea gardneri</i> (Meisn.) Mez▲
<i>Ocotea glomerata</i> (Ness) Mez
Lecythidaceae
<i>Eschweilera ovata</i> (Cambess.) Miers*▲
<i>Eschweilera luschnathii</i> (O. Berg) Miers▲
<i>Gustavia augusta</i> L.▲
Lentibulariaceae
<i>Utricularia pusilla</i> Vahl.▲
Liliaceae
<i>Crinum procerum</i> Carey
<i>Hippeastrum aulicum</i> Herb.
<i>Hippeastrum stylosum</i> Herb.
Loganiaceae
<i>Spigelia anthelmia</i> L.▲
Loranthaceae
<i>Psittacanthus dichrous</i> (Mart.) Mart.*▲
Lythraceae
<i>Cuphea flava</i> Spreng.▲
Malpighiaceae
<i>Byrsonima cydoniifolia</i> A. Juss.▲
<i>Byrsonima gardneriana</i> A.Juss.▲
<i>Byrsonima riparia</i> W. R. Anderson
<i>Byrsonima sericea</i> DC.*▲
<i>Byrsonima verbascifolia</i> (L.) DC.*▲
<i>Galphimia brasiliensis</i> (L.) A. Juss.
<i>Stigmaphyllon paralias</i> A. Juss.*▲

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Table 2. Continuation.

Malvaceae
<i>Gossypium arboreum</i> L.
<i>Gossypium hirsutum</i> L.
<i>Pavonia cancellata</i> (L.) Cav.▲
<i>Pseudomalachra ciliaris</i> (L.) H.C. Monteiro▲
<i>Pseudomalachra plumosa</i> (Cav.) H. Monteiro▲
<i>Sida linifolia</i> Cav.▲
<i>Malva rhombifolia</i> (L.) Krause▲
<i>Urena lobata</i> L.▲
Maranthaceae
<i>Stromanthe tonckat</i> (Aubl.) Eichler
Marcgraviaceae
<i>Norantea brasiliensis</i> Choisy*▲
Melastomaceae
<i>Clidemia biserrata</i> DC.*
<i>Clidemia hirta</i> (L.) D. Don*▲
<i>Miconia albicans</i> (Sw.) Triana.*▲
<i>Miconia</i> cf. <i>amoena</i> Triana*▲
<i>Miconia ciliata</i> (Rich.) DC.*▲
<i>Pterolepis herincqniana</i> Cogn.
<i>Pterolepis polygonoides</i> (DC.) Triana
Mimosaceae
<i>Abarema cochliacarpus</i> (Gomes) Barneby & J.W. Grimes*
<i>Abarema filamentosa</i> (Benth.) Pittier*▲
<i>Acacia farnesiana</i> (L.) Willd.
<i>Chloroleucon foliolosum</i> (Benth.) G.P. Lewis▲
<i>Inga bahiensis</i> Benth.▲
<i>Inga capitata</i> Desv.*▲
<i>Inga edulis</i> Mart.
<i>Inga fagifolia</i> G. Don▲
<i>Inga flagelliformis</i> (Vell.) Mart.
<i>Inga marginata</i> Willd.
<i>Mimosa bimucronata</i> (DC.) Kuntze*
<i>Mimosa pigra</i> L.▲
<i>Mimosa pudica</i> L.▲
<i>Mimosa somnians</i> Humb. & Bonpl. Ex Willd.▲
<i>Pithecellobium dulce</i> (Roxb.) Benth.
<i>Pithecellobium saman</i> (Jacq.) Benth.▲
Molluginaceae
<i>Mollugo verticillata</i> L.▲
Moraceae
<i>Ficus guianensis</i> Desv. ex Ham.▲
Myrsinaceae
<i>Rapanea guianensis</i> Aubl.▲
Myrtaceae
<i>Calyptranthes brasiliensis</i> Spreng.*
<i>Calyptranthes dardanoi</i> Mattos
<i>Campomanesia dichotoma</i> (O. Berg) Mattos▲

LISTS OF SPECIES

Table 2. Continuation.

<i>Eugenia excelsa</i> O. Berg*
<i>Eugenia ferreiraeana</i> O. Berg
<i>Eugenia hirta</i> O. Berg*▲
<i>Eugenia puniceifolia</i> (Kunth) DC.*▲
<i>Eugenia uniflora</i> L.*▲
<i>Marlierea parviflora</i> O. Berg
<i>Marlierea regeliana</i> O. Berg
<i>Marlierea</i> aff. <i>schottii</i> (O. Berg) D. Legrand*
<i>Marlierea strigipes</i> O. Berg
<i>Myrcia bergiana</i> O. Berg*
<i>Myrcia guianensis</i> (Aubl.) DC.*▲
<i>Myrcia hirtiflora</i> DC.
<i>Myrcia</i> aff. <i>laroutteana</i> Cambess.
<i>Myrcia multipla</i> D. Legrand
<i>Myrcia rotundifolia</i> (O. Berg) Kiaersk.▲
<i>Myrcia sylvatica</i> (G. Mey.) DC.▲
<i>Myrcia tomentosa</i> (Aubl.) DC.
<i>Myrciaria floribunda</i> (H. West ex Willd.) O. Berg*▲
<i>Psidium araca</i> Raddi▲
<i>Psidium cattleyanum</i> Sabine*
<i>Psidium guineense</i> Sw.*▲
Nyctaginaceae
<i>Boerhavia coccinea</i> Mill.▲
<i>Guapira nitida</i> (Schmidt) Lundell
<i>Guapira pernambucensis</i> (Casar.) Lundell*▲
<i>Pisonia cordifolia</i> Mart.▲
<i>Pisonia subcordata</i> Sw.
Ochnaceae
<i>Ouratea crassa</i> Tiegh▲
<i>Ouratea cuspidata</i> Tiegh.*▲
<i>Ouratea fieldingiana</i> (Gardner) Engl.▲
<i>Sauvagesia tenella</i> Lam.
Olacaceae
<i>Ximenia americana</i> L.*▲
Oleaceae
<i>Jasminum azoricum</i> L.
Onagraceae
<i>Ludwigia linifolia</i> Poir.▲
<i>Ludwigia suffruticosa</i> Walter*▲
Orchidaceae
<i>Catasetum discolor</i> (Lindl.) Lindl.*▲
<i>Catasetum macrocarpum</i> Rich. ex Kunth*
<i>Cyrtopodium intermedium</i> Brade*
<i>Cyrtopodium paranaense</i> Schltr.▲
<i>Dimerandra emarginata</i> (G. Mey.) Hoehne
<i>Encyclia acuta</i> Schltr.
<i>Epidendrum cinnabarinum</i> Salzm. ex Lindl.▲
<i>Epidendrum schomburgkii</i> Lindl.

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Table 2. Continuation.

<i>Habenaria petalodes</i> Lindl.
<i>Oeceoclades maculata</i> (Lindl.) Lindl.*▲
<i>Polystachya concreta</i> (Jacq.) Garay & H.R. Sweet*▲
<i>Prescottia stachyodes</i> (Sw.) Lindl. *
<i>Prosthechea fragrans</i> (Sw.) W.E. Higgins
<i>Vanilla chamissonis</i> Klotzch.*▲
Passifloraceae
<i>Passiflora cincinnata</i> Mart.▲
<i>Passiflora foetida</i> L.▲
<i>Passiflora galbana</i> Mast.*▲
<i>Passiflora mucronata</i> Lam.*▲
<i>Passiflora quadrangularis</i> L.
Phytolacaceae
<i>Microtea paniculata</i> Moq.*▲
Poaceae
<i>Andropogon bicornis</i> L.▲
<i>Andropogon selloanus</i> (Hack.) Hack.*▲
<i>Aristida longifolia</i> Trin.
<i>Cenchrus echinatus</i> L.▲
<i>Chloris dandyana</i> C.D. Adams
<i>Cynodon dactylon</i> (L.) Pers.▲
<i>Cynodon dactylon</i> var. <i>maritimus</i> (Kunth) Hack.
<i>Dactyloctenium aegyptium</i> (L.) Willd.▲
<i>Digitaria ciliaris</i> (Retz.) Koeler▲
<i>Digitaria sanguinalis</i> (L.) Scop.▲
<i>Echinochloa colonum</i> (L.) Link.▲
<i>Echinochloa crus-pavonis</i> (Kunth) Schult.
<i>Eleusine indica</i> (L.) Gaertn.▲
<i>Eragrostis ciliaris</i> (L.) R. Br.▲
<i>Eragrostis prolifera</i> (Sw.) Steud.
<i>Eragrostis rufescens</i> Schrad. ex Schult.▲
<i>Eustachys caribaea</i> (Spreng.) Herter
<i>Gymnopogon foliosus</i> (Willd.) Ness*▲
<i>Hymenachne amplexicaulis</i> (Rudge) Nees▲
<i>Hyparrhenia diplandra</i> (Hack.) Stapf
<i>Leptochloa scabra</i> Nees
<i>Panicum aquaticum</i> Poir.▲
<i>Panicum asperifolium</i> (Desv.) Hitchc.▲
<i>Panicum laxum</i> Sw.*▲
<i>Panicum pilosum</i> Sw.▲
<i>Panicum repens</i> L.
<i>Pappophorum mucronulatum</i> Ness
<i>Paspalidium geminatum</i> (Forssk.) Stapf▲
<i>Paspalum arundinaceum</i> Poir.
<i>Paspalum conjugatum</i> P.J. Bergius
<i>Paspalum maritimum</i> Trin.*▲
<i>Paspalum vaginatum</i> Sw.*▲
<i>Raddia biformis</i> Hitchc. & Chase

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Table 2. Continuation.

<i>Setaria tenax</i> (Rich.) Desv.▲
<i>Setaria vulpiseta</i> (Lam.) Roem.& Schult.▲
<i>Sporobolus tenacissimus</i> (L. f.) P. Beauv.
<i>Sporobolus virginicus</i> (L.) Kunth*▲
<i>Trichachne insularis</i> (L.) Nees
<i>Urochloa decumbens</i> (Stapf) R.D. Webster
Polygalaceae
<i>Polygala cyparissias</i> A.St.-Hil. & Moq.*▲
<i>Polygala violacea</i> Aubl.▲
<i>Securidaca volubilis</i> L.
Polygonaceae
<i>Coccoloba confusa</i> How*
<i>Coccoloba laevis</i> Casar.*▲
<i>Coccoloba scandens</i> Casar.
<i>Polygonum acre</i> Lam.
Portulacaceae
<i>Portulaca oleracea</i> L.▲
Rhamnaceae
<i>Ziziphus joazeiro</i> Mart.▲
Rubiaceae
<i>Alibertia sessilis</i> (Vell.) K. Schum.
<i>Anisomeris gracilipes</i> K. Schum.
<i>Borreria scabiosoides</i> Cham. & Schltdl.*
<i>Borreria verticillata</i> (L.) G. Mey.▲
<i>Borreria virgata</i> Cham. & Schltdl.
<i>Chiococca alba</i> (L.) Hitchc.*▲
<i>Diodia apiculata</i> (Willd. ex Roem. & Schult.) K. Schum.*▲
<i>Diodia setigera</i> DC.
<i>Genipa americana</i> L.*▲
<i>Guettarda platypoda</i> DC.▲
<i>Mitracarpus frigidus</i> (Willd. ex Roem. & Schult.) K. Schum.*▲
<i>Palicourea crocea</i> (Sw.) Roem. & Schult.
<i>Psychotria bahiensis</i> DC.▲
<i>Richardia grandiflora</i> (Cham. et Schltdl.) Steud.▲
<i>Salzmannia nitida</i> DC.*▲
<i>Staelia galioides</i> DC.
<i>Staelia virgata</i> (Link ex Roem. & Schult.) K. Schum.
<i>Tocoyena brasiliensis</i> Mart.▲
<i>Tocoyena formosa</i> (Cham. & Schltdl.) K. Schum.▲
<i>Tocoyena sellowiana</i> (Cham. & Schltdl.) K.Schum.▲
Rutaceae
<i>Esenbeckia grandiflora</i> Mart.*▲
<i>Pilocarpus pauciflorus</i> A. St.-Hil.
Sapindaceae
<i>Cupania aff. racemosa</i> (Vell.) Radlk.*
<i>Dodonaea viscosa</i> Jacq.
<i>Paullinia pinnata</i> L.
<i>Paullinia trigonia</i> Vell.▲
<i>Serjania salzmänniana</i> Schltr.*▲

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Table 2. Continuation.

Sapotaceae
<i>Manilkara salzmannii</i> (A. DC.) H.J.Lam [▲]
<i>Manilkara zapota</i> (L.) P. Royen [▲]
<i>Pouteria grandiflora</i> (A. DC.) Baehni* [▲]
Scrophulariaceae
<i>Capraria biflora</i> L.
<i>Scoparia dulcis</i> L. [▲]
<i>Stemodia foliosa</i> Benth. [▲]
<i>Stemodia pratensis</i> (Aubl.) C.P. Cowan
Simaroubaceae
<i>Simaba cuneata</i> A.St.-Hil & Tul.* [▲]
Solanaceae
<i>Cestrum parqui</i> L'Hér.
<i>Cyphomandra fragrans</i> (Hook.) Sendtn.
<i>Lycopersicon esculentum</i> Mill.
<i>Schwenckia americana</i> L.* [▲]
<i>Solanum americanum</i> Mill. [▲]
<i>Solanum paludosum</i> Moric. [▲]
<i>Solanum paniculatum</i> L. [▲]
<i>Solanum stipulaceum</i> Roem. & Schult. [▲]
Sterculiaceae
<i>Guazuma ulmifolia</i> Lam [▲]
<i>Waltheria indica</i> L. [▲]
<i>Waltheria viscosissima</i> A. St.-Hil. [▲]
Theophrastaceae
<i>Jacquinia armillaris</i> Jacq. [▲]
Tiliaceae
<i>Luehea paniculata</i> Mart.
Trigonaceae
<i>Trigonia nivea</i> Cambess* [▲]
Turneraceae
<i>Turnera ulmifolia</i> L. [▲]
Ulmaceae
<i>Trema micrantha</i> (L.) Blume* [▲]
Verbenaceae
<i>Lantana camara</i> L. [▲]
<i>Lantana rugulosa</i> Kunth
<i>Lippia alba</i> (Mill.) N.E. Br
<i>Stachytarpheta cayennensis</i> (Rich) Vahl
<i>Stachytarpheta elatior</i> Schrad. ex Schult. [▲]
<i>Vitex rufescens</i> A. Juss. [▲]
Violaceae
<i>Hybanthus ipecacuanha</i> (L.) Baill. [▲]
<i>Rinorea</i> aff. <i>bahiensis</i> (Moric.) Kuntze
Vitacea
<i>Cissus erosa</i> Rich.* [▲]
Vochysiaceae
<i>Qualea cryptantha</i> (Spreng.) Warm.*
Xyridaceae
<i>Xyris jupicai</i> Rich.* [▲]

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The families with the greatest numbers of species had predominately herbaceous habits, followed by shrub-arboreal families (Myrtaceae and Fabaceae) that are common in the Atlantic Forests and of generally wide distribution (Peixoto and Gentry 1990; Silva and Britez 2005).

Pereira and Araujo (2000) compiled a species list for the *restingas* of Espírito Santo and Rio de Janeiro and encountered 1,378 species, 13 % of which were endemic to Rio de Janeiro. A comparison of this study with that presented here reveals that the *restingas* of Pernambuco contain ca. 34 % of the species listed for Espírito Santo and Rio de Janeiro, and only 10 % (140 species) were held in common. Of the 477 species recorded from Pernambuco, 289 (60.71 %) were found in other *restingas* of northeastern Brazil.

Among the shrub and arboreal species with ample distribution within the *restingas* of Pernambuco were: *Andira nitida*, *Buchenavia capitata*, *Byrsonima gardneriana*, *Byrsonima sericea*, *Coccoloba laevis*, *Curatella americana*, *Guettarda platypoda*, *Hancornia speciosa*, *Himatanthus phagedaenicus*, *Inga capitata*, *Manilkara salzmannii*, *Maytenus distichophylla*,

Pera glabrata, *Protium heptaphyllum*, *Sacoglottis matogrossensis*, *Tapirira guianensis*, and *Vismia guianensis*, among others. According to Zickel et al. (2004), these species are also found in other *restinga* areas in northeastern Brazil.

The species with restricted distributions in Pernambuco and not cited for *restingas* of other northeastern states represent 39.29 % (188 species) of all the species encountered, and include: *Abarema filamentosa* (Figure 2), *Annona crassiflora* (Figure 3), *Byrsonima riparia* (Figure 4), *Calyptrothos dardanoi*, *Coccoloba confusa*, *Cyphomandra fragrans*, *Guapira* cf. *nitida*, *Inga flagelliformis*, *Cipura paludosa*, *Myrcia bergiana*, *Myrcia guianensis*, *Paullinia pinnata*, *Pilocarpus pauciflorus*, *Protium bahianum*, *Rollinia pickelli*, *Ruellia geminiflora*, *Staelia galioides*, *Schultesia guianensis*, *Sloanea guianensis*, *Stachytarpheta cayennensis*, *Stylosanthes angustifolia*, and *Urochloa decumbens*.

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Figure 2. Flower and fruit of *Abarema filamentosa* (Benth.) Pittier; municipality of Ipojuca, Pernambuco.

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Figure 3. Lateral view, flower of *Annona crassiflora* Mart.; municipality of Ipojuca, Pernambuco.



Figure 4. Frontal view, inflorescence of *Byrsonima riparia* W. R. Anderson; municipality of Ipojuca, Pernambuco.

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